

Appn. Number 10/653,678 Michael John Keogh Nguyen/2831 Amnt.D

### **Applicant's Summary of Telephone Contact 10/27/05**

Applicant discussed with Examiner C. Nguyen the substance of the of the recent Office Action. Below in amendment form is the result of this discussion together with some additional changes based on applicant's further consideration of the content of the references cited in the Office Action.

### **Requested Correction on Wording of Claim 35**

Claim 35 was corrected as required

### **Rejection of Claims 35-39 Under 35 U.S.C. 103(a)**

Claims 35-39 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (2002/0096356) in view of Weil et al. (5,578,666). Examiner states Kim et al. discloses an insulated wire and a dual layer protective sheath.

Applicant states that the Kim reference does not disclose this construction and does not apply to the subject matter of Claims 35-39. Kim discloses a dual layer insulation system. His inventive insulation system is said to comprise a crosslinked highly flame retardant and halogen-free first insulating layer (inner) and a tough, flexible second insulating layer (outer and non-intumescent). This is not an insulated, coated, wire and a dual layer protective sheath.

Kim et al. never contemplates applicant's dual layer intumescent thermoplastic sheath/ jacket component and its use in cable construction. In [0069] Kim advances a third coating layer over his insulation to provide a sheath. Moreover in [0070] Kim resorts to a construction that involves using his crosslinked first layer as insulation on wires or wire cores and applies his second layer as a sheath. No suggestion for applicant's approach is found in Kim et al. In fact Kim's approaches would lead away from applicant's invention because he does not see its utility in his application.

Kim et al. in [0005] and again in [0006] states the clear intent for an insulating system with focus on cut through resistance. There is nothing in Kim et al. to suggest that a thermoplastic version of his thermoset composition would have application in wire and cable. As such applicant holds that his invention as presented in claims 35-39 is not anticipated by Kim et al. and is not obvious. Kim is forced to a crosslinked system because his first layer insulation, if thermoplastic, would lose concentricity exposed to conductor resistive heat buildup. The wire conductor would unevenly penetrate the softened thermoplastic ethylene copolymer resin system thereby losing electrical, mechanical and flame properties.

Claims 36-39, dependent on claim 35, are deemed allowable following the arguments made for Claim 35.

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### **Rejection of Claims 42-51 Under 35 U.S.C.103(a)**

As noted above Kim et al. presented with the opportunity for suggesting the construction disclosed in claim 42 did not see the utility of the approach . Moreover if the modified Kim were to involve a thermoplastic insulating first layer the disadvantages previously cited would preclude any possibility for meeting the demanding requirements that exist for plenum and riser application. Claim 42 as presented is deemed allowable.

Claim 43 has been narrowed to overcome examiner's objection when applicant's invention is employed as an insulating and jacket system. Rewritten claim 43 specifically employs polypropylenes as high melting superior thermoplastic insulating resins. Kim et al. does not disclose nor anticipate the use of polypropylenes in his first layer presumably because he is aware that his needed crosslinking would not occur. In fact radiation exposure, advanced as key to Kim et al., would lead to substantial polypropylene polymer degradation and low molecular weight species.

As noted previously, Kim et al. [0070] teaches a dual layer insulation and jacket construction. However as noted Kim's insulation if employed as a thermoplastic will not function as an adequate insulation component. Kim is driven to accomplish cut through resistance and must use crosslinking to accomplish his primary objective. He avoids any consideration of polypropylene presumably because of the difficulty in crosslinking. The resin exclusion in Kim et al. will apply in claims 50 and 51.

Claim 43 and the dependent claims following are deemed allowable.

### **Rejection of Claims 40 and 41 Under 35 U.S.C. 103(a)**

Examiner states Keough et al., disclosing a non-halogen sheath for cable, as a substitute composition for the inner insulation layer of Kim et al. Keough et al. developed as a highly flame retardant sheath compound will have no insulating properties as a thermoplastic. The compositions taught in Keough et al. suffer from all the same disadvantages as the Kim et al. modified as a thermoplastic with the added major problem presented by the red phosphorus in the composition.

It is expected that red phosphorus may well interfere with crosslinking due to interaction with radiation generated radical species needed to afford crosslinking. However of far greater concern would be the well documented interaction of red P with metals, water and air (oxygen). Red P is considered incompatible, unsuitable for use, with conductor metals such as copper and aluminum ( see attached data sheet). In addition in contact with oxygen and water, ubiquitous species in compounding, extrusion and aging on wire, red P reacts to form toxic gas (phosphine) and highly acidic byproducts

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(phosphorus oxyacids and phosphoric acid) (see attached data sheet). Corrosion from the acids generated in the layer in direct contact with the metal conductor will be extensive. Keough et al. however modified would not be suitable as an inner layer substitute in Kim et al.

Applicant believes the objection is overcome and claim 40 and 41 are allowable.

### **Summary Comments**

While admittedly limited, nevertheless my understanding of patent law relative to obviousness is that it is not proper to combine references unless the references themselves, rather than the applicant's patent application, suggest the combination. Somewhere in the pursuit of this application applicant has not clearly conveyed the novelty and the unobviousness of the synergism obtained from his unique combination of existing technologies to accomplish the unexpected and surprising results claimed in the application.

Specifically, applicant alone recognized that metal hydrate filled polyolefin compounds lose a significant level of their flame retarding effectiveness at elevated temperature. He surmised that building a thermal insulating barrier, generated as a first step in a fire event, would allow for retention of the inherent FR properties over a wide range of time and temperature. Admittedly he employed known technologies but in a unique combination to accomplish the goal of long term flame retardance without the sacrifice of key physical, mechanical, electrical, smoke and toxic gas properties. Others skilled in the art, aware of the market needs and the FR technologies including the limitations never advanced applicant's approach as a solution.

Further, In application as a insulating/jacket construction, claim 43, applicant recognized that a dual layer could be employed to solve the long standing conductor corrosion problem associated with a phosphorus-based intumescent FR system. This issue had prevented the application of phosphorus- based intumescent technology as a FR insulating system. Here again applicant's solution is admittedly simple in hindsight but arguably not obvious.

My years in research taught me that simple does not necessarily equate to obvious, except perhaps after the fact . To illustrate, Post-Its, a product of the 3M Corporation and Velcro, a NASA development, serve as excellent examples for illustrating "simple but not obvious". The technologies, the advantages and the market need all existed long before the "now obvious" inventions were made.

### **Conclusion**

For the reasons above, applicant submits the specification and claims are now in

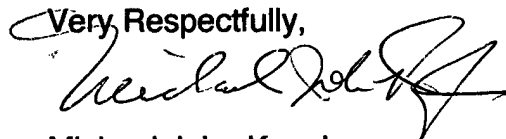
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proper form and that the claims all define patentability over the prior art. Therefore he submits that this application is now in condition for allowance, which action is respectfully solicited.

**Conditional Request for Constructive Assistance**

Applicant has amended the claims of this application so that they are proper, definite, and define novel and unobvious matter. If, for any reason this application is not believed to be in full condition for allowance, applicant respectfully requests the constructive assistance and suggestions of the Examiner pursuant to M.P.E.P. 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Very Respectfully,



Michael John Keogh

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Certificate of Mailing: I certify that this correspondence, and attachment, if any, will be deposited with the United States Postal Service by first class mail, postage paid, in an envelope addressed to , Commissioner for Patents, P. O. Box 1450, Alexandria, Va 22313-1450 on the date below.

Date: Dec. 9, 2005

Inventor's Signature :

